



**COVER SHEET
STANDARD OPERATING PROCEDURE**

OPERATION TITLE: DUST WIPE COLLECTION PROTOCOL
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1.0 APPLICABILITY

This Standard Operating Procedure (SOP) applies to all programs in the Maine Department of Environmental Protection's (MEDEP) Division of Remediation (DR). It is also applicable to all parties that may submit data that will be used by the DEP/DR.

This SOP is not a rule and is not intended to have the force of law, nor does it create or affect any legal rights of any individual, all of which are determined by applicable statutes and law. This SOP does not supersede statutes or rules.

2.0 PURPOSE

The purpose of this document is to describe the MEDEP/DR procedures and protocols for collecting settled dust samples.

3.0 RESPONSIBILITIES

All MEDEP/DR Staff must follow this procedure when performing this task. All Managers and Supervisors are responsible for ensuring that their staff are familiar with and adhere to this procedure. MEDEP/DR staff reviewing data by outside parties are responsible for assuring that the procedure (or an equivalent) was utilized appropriately.

4.0 GUIDELINES AND PROCEDURES

4.1 INTRODUCTION

Wipe Sampling for Settled Metal-Contaminated Dust. Wipe samples for settled metal contaminated dust can be collected from floors (both carpeted and uncarpeted), interior and sash/sill contact areas, and other reasonably smooth surfaces. Wherever possible, hard surfaces should be sampled. Wipe media should be sufficiently durable so that it is not easily torn, but can be easily digested in the laboratory. Recovery rates of between 80-120% of the true value should be obtained for all media used for wipe sampling. Blank media should contain no more than 25 ug/wipe of any target metal (the detection limit using Flame Atomic Absorption).

4.2 SAMPLING EQUIPMENT

4.2.1 DISPOSABLE WIPE: Any wipe material that meets the following criteria may be used:

- Contains low background metal levels,
- Is a single thickness,
- Is durable and does not tear easily (do not use Whatman™ filters),
- Does not contain aloe or lanolin,
- Can be digested in the laboratory,



- Has been shown to yield 80-120% recovery rates from samples spiked with metal dust (not metals in solution),
- Must remain moist during the wipe sampling process (wipes containing alcohol may be used as long as they do not dry out).

4.2.2 NON-POWDERED DISPOSABLE NITRILE GLOVES. Disposable gloves are required to prevent cross-sample contamination from hands.

4.2.3 NON-STERILIZED POLYETHYLENE CENTRIFUGE TUBES (50 ml size) or equivalent hard-shell container that can be rinsed quantitatively in the laboratory.

4.2.4 DUST SAMPLE COLLECTION FORMS.

4.2.5 CAMERA to document exact locations (Optional).

4.2.6 TEMPLATE. Masking tape or hard, smooth, reusable templates may be used to define the area to be wiped. Periodic wipe samples should be taken from the templates to determine if the template is contaminated. Disposable templates are also permitted so long as they are not used for more than a single surface. Templates must be larger than 0.1ft², but smaller than 2ft². Templates for floors are typically 1ft². Templates are usually not used for windows due to the variability in size and shape (use masking tape instead).

Note: Masking tape may damage the painted surface. Drafting tape or painter's tape may be less damaging to the paint. Any tape will be harder to remove, the longer it has been in place.

4.7 CONTAINER LABELS OR PERMANENT MARKER.

4.8 TRASH BAG or other receptacle (do not use pockets or trash containers at the residence).

4.9 RACK, bag, or box to carry tubes (optional).

4.10 MEASURING TAPE.

4.11 DISPOSABLE SHOE COVERINGS (optional).

4.3 SINGLE SURFACE WIPE SAMPLING PROCEDURE

4.3.1 Outline Wipe Area:

4.3.1.1 Floors:

Identify the area to be wiped. Do not walk on or touch the surface to be sampled (the wipe area). Apply masking tape to perimeter of the wipe area to form a square or rectangle of about one square foot. No measurement is required at this time. The tape should be positioned in a



straight line and corners should be nominally perpendicular. When putting down any template, do not touch the interior wipe area.

4.3.1.2 Window Sills and other rectangular areas:

Identify the area to be wiped. Do not touch the wipe area. Apply two strips of masking tape across the sill to define a wipe area at least 0.1 square foot in size (approx. 4 inches x 4 inches).

4.3.2 Preliminary inspection of the disposable wipes.

Inspect the wipes to determine if they are moist. If they have dried out, do not use them. When using a container that dispenses wipes through a “pop-up” lid, the first wipe in the dispenser at the beginning of the day should be thrown away. The first wipe may be contaminated by the lid and is likely to have dried to some extent. Rotate the container prior to each use to ensure liquid inside the container contacts the wipes.

4.3.3 Gloves

Don a disposable glove on one hand; use a new glove for each sample collected. If two hands are necessary to handle the sample, use new gloves, one for each hand. It is not necessary to wipe the gloved hand before sampling.

4.3.4 Collection of sample

Place the wipe at one corner of the surface to be wiped with wipe fully opened and flat on the surface. For square sample areas, complete a first wipe pass side-to-side as follows. With the fingers together, grasp the wipe between the thumb and the palm. Press down firmly, but not excessively with both the palm and fingers (Do not use only the fingertips or the heel of the hand to hold down the wipe, because there will not be complete contact with the surface and some dust may be missed.) Do not touch the surface with the thumb. Proceed to wipe side-to-side with as many “S”-like motions as are necessary to completely cover the entire wipe area. Exerting excessive pressure on the wipe will cause it to curl. Exerting too little pressure will result in poor collection of dust. Attempt to remove all visible dust from the wipe area.

Fold the wipe in half with the contaminated side facing inward. (The wipe can be straightened out by laying it on the wipe area, contaminated side up, and folding it over.) Once folded, place in the top corner of the wipe area and press down firmly with the palm and fingers. Complete a second wipe pass moving from top-to-bottom and wiping the area with “S”-like motions. Attempt to remove all visible dust. Do not touch the contaminated side of the wipe with the hand or fingers. Do not shake the wipe in an attempt to straighten it out, since dust may be lost during shaking.

For rectangular sample areas, two side-to-side passes must be made over half of this surface, the second pass with the wipe folded so that the contaminated side faces inward. For a window sill, do not attempt to wipe the irregular edges presented by the contour of the window channel. Avoid touching other portions of the window with the wipe. If there are paint chips or gross debris in the window sill, attempt to include as much of it as possible on the wipe. If all of the



material cannot be picked up with one wipe, field personnel may use a second wipe at their discretion and insert it in the same container. Consult with the analytical laboratory to determine if they can perform analysis of two wipes as a single sample. When performing single-surface sampling, do not use more than two single surface wipes for each container. If heavily dust-laden, a smaller area should be wiped. It is not necessary to wipe the entire window well but do not wipe less than 0.10 ft² (approx. 4" x 4").

4.3.5 Packaging the Wipe

After wiping, fold the wipe with the contaminated side facing inward again, and insert aseptically (without touching anything else) into the centrifuge tube or other hard-shelled container. If gross debris is present, such as paint chips in a window well, make every attempt to include as much of the debris as possible in the wipe.

4.3.6 Seal the tube and label with the appropriate identifier.

Record the laboratory submittal sample number on the field sampling form.

4.3.7 Area Measurement

After sampling, measure the surface area wiped to the nearest eighth of an inch using a tape measure or a ruler. The size of the area wiped must be at least 0.10 ft² in order to obtain an adequate limit of quantitation. No more than 2 square feet should be wiped with the same wipe or else the wipe may fall apart. Record specific measurements for each area wiped on the field sampling form.

4.3.8 Form completion

Collect and maintain any field notes regarding type of wipe used, lot number, collection protocol, etc.

4.3.9 Trash Disposal

After sampling, remove the masking tape and throw it away in a trash bag. Remove the glove; put all contaminated gloves and sampling debris used for the sampling period into a trash bag. Remove the trash bag when leaving the dwelling. Do not throw away gloves or wipes inside the dwelling unit where they could be accessible to young children, resulting in a suffocation hazard.

4.3.10 Blank Preparation

After sampling the final dwelling unit of the day, but before decontamination, field blank samples should be obtained. Analysis of the field blank samples determines if the sample media is contaminated. Each field blank should be labeled with a unique identifier similar to the others but that identifies the sample as a field blank.

Blank wipes are collected by removing a wipe from the container with a new glove, shaking the wipe open, refolding as it occurs during the actual sampling procedure, and then inserting it into



the centrifuge tube without touching any surface or other object. One blank wipe is collected for each dwelling unit sampled or, if more than one dwelling unit is sampled per day, one blank for every 50 field samples, whichever is less. Also, collect one blank for every lot used. Record the lot number.

5.0 SAMPLER DECONTAMINATION

After sampling, wash hands thoroughly with plenty of soap and water. A bathroom in the dwelling unit may be used for this purpose, with the owner's or resident's permission. If there is not running water in the dwelling unit, use wet wipes to clean the hands. During sampling, sampler must not eat, drink, smoke, or otherwise cause hand to mouth contact.

6.0 DOCUMENTATION/ CHAIN OF CUSTODY

Submittal Form Preparation. Fill out the appropriate field sampling forms completely. The sample numbers on the sample container must be the same as those on the field sampling form and must also be used on the laboratory submittal form. Confirm that all samples recorded are in fact present on the laboratory submittal form.

All site visits must be documented as described in the SOP# RWM-DR-013 - Documentation of Field Activities and Development of A Trip Report. Use of specialized sampling forms is allowed, following the procedure outlined in DR-013. Sample custody must be followed as outlined in MEDEP/DR SOP# RWM-DR-012 – Chain of Custody Protocol.